

ABSTRACT

THESIS: Exercise-induced Alterations in Immunoglobulin (IgA, IgG, IgM) Levels in Cancer Versus Non-Cancer Patients

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A suppressed immune system is a complicating health factor in cancer patients that keeps them from achieving the highest quality of life possible. Moderate exercise is thought to boost the immune system in cancer patients. The aim of this project was to determine the effects of an eight week aerobic exercise program on the mucosal immune system of cancer survivors compared to non-cancer patients. Our hypothesis was that the immune system of the cancer patients would positively respond to a moderate exercise program, specifically increasing antibody production. To examine our hypothesis, five cancer and six non-cancer patients undertook a supervised moderate aerobic exercise program at the University of Northern Colorado. The subjects performed an incremental peak treadmill test to exhaustion at the start of the program and after 8 weeks of training. Saliva samples were taken at specific times for each peak exercise test: prior to testing, immediately after testing, and 30 minutes post-test. Enzyme-Linked ImmunoSorbent Assays (ELISA) were performed at Ball State University to analyze the levels of immunoglobulins (IgA, IgG, IgM) in saliva samples of cancer and non-cancer patients. Our findings demonstrated there was a significant increase in IgG after 8 weeks of moderate exercise in non-cancer patients 30 minutes after the treadmill test. A significant increase was also seen in salivary IgA levels after 8 weeks of moderate exercise in cancer patients 30 minutes after the treadmill test was administered, supporting our hypothesis that exercise enhances immune function. Eight weeks of moderate exercise has been shown to enhance immune function demonstrated by the increase of IgA and IgG levels in saliva.